Listing of Claims:

1. (original) A precursor delivery system for delivering pulses of vaporized precursor material to a reaction space in a thin film deposition system, comprising:

a precursor container for holding a supply of precursor material;

a flow path from the precursor container to the reaction space;

a pulse control device interposed between the precursor container and the reaction space, the pulse control device adapted to selectively release pulses of the precursor material toward the reaction space via the flow path; and

a high conductivity particle filter interposed in the flow path between the precursor container and the reaction space, the high conductivity particle filter including at least one inertial trap adjacent the flow path for filtering particles from the precursor material without significantly restricting flow of the pulses through the flow path.

2. (original) The system of claim 1, further comprising a vacuum source coupled to the precursor container via a vacuum flow path for controlling a pressure within the precursor container.

3. (original) The system of claim 2, further comprising a vacuum shut-off valve operably interposed between the vacuum source and the precursor container for selectively interrupting the vacuum flow path.

4. (original) The system of claim 3, further comprising a vacuum filter interposed in the vacuum flow path between the precursor container and the vacuum shut-off valve.

5. (original) The system of claim 4, in which the high conductivity particle filter is included in the vacuum filter.

6. (original) The system of claim 2, further comprising an isolation valve interposed between the precursor container and the reaction space for sealing the flow path downstream from the precursor container to facilitate adjustment of the pressure in the precursor container via the vacuum source.

7. (original) The system of claim 1, in which the high conductivity particle filter further includes:

an inlet coupled to an upstream portion of the flow path;

an outlet coupled to a downstream portion of the flow path;

a filter passage in communication with the inlet and the outlet, the filter passage including multiple turns between the inlet and the outlet; and

in which the inertial trap communicates with the filter passage and is positioned in proximity to one of the turns so that the inertia of the particles causes the particles to travel

into the trap as the precursor material flows through the filter passage through said turn, thereby preventing the particles from passing into the reaction space.

8. (original) The system of claim 7, in which at least some of the turns of the filter passage form a spiral.

9. (original) The system of claim 7, in which the turns are defined by a series of baffles between the inlet and the outlet.

10. (original) The system of claim 7, in which the turns are defined by a set of nested tubes having nonaligned side apertures extending through the sides of the tubes.

11. (currently amended) The system of claim 1, further comprising at least one high efficiency particle filter positioned in the flow path downstream from the high ~~efficiency~~ conductivity particle filter and upstream from the pulse control device.

12. (original) The system of claim 1, further comprising:

means for vaporizing the precursor material upstream from the reaction space.

13. (original) The system of claim 12, in which the means for vaporizing includes a vacuum source coupled to the precursor container via a vacuum flow path.

14. (original) The system of claim 13, further comprising a vacuum shut-off valve operably interposed between the vacuum source and the precursor container for selectively closing the vacuum flow path.

15. (original) The system of claim 12, in which the means for vaporizing includes a heater thermally associated with the precursor container.

16. (original) The system of claim 1, in which the pulse control device includes a pulse valve.

17. (original) The system of claim 16, in which the pulse control device includes a diffusion barrier operably connected to the flow path downstream from the pulse valve for preventing leakage from the pulse valve from reaching the reaction space.

18. (original) The system of claim 1, in which the pulse control device includes an inert gas valve operably coupled to the flow path.

19. (original) The system of claim 1, further comprising a staging volume interposed in the flow path downstream from the precursor container and upstream from the reaction space for holding at least one dose of precursor material, the staging volume selectively isolatable from the precursor container and selectively isolatable from the reaction space.

20. (original) The system of claim 19, further comprising a supply of inert boost gas coupled to the staging volume.

21. (original) The system of claim 19, further comprising a pulse valve positioned in the flow path downstream from the staging volume.

22. (original) The system of claim 19, in which the staging volume is positioned in the flow path downstream from the high conductivity particle filter.

23. (original) The system of claim 22, further comprising one or more high efficiency particle filters interposed between the high conductivity particle filter and the staging volume.

24. (original) The system of claim 22, further comprising a second high conductivity particle filter interposed in the flow path between the staging volume and the reaction space.

25. (original) The system of claim 19, in which the staging volume is sufficiently large so that the release of a single pulse of the precursor material causes a pressure inside the staging volume to decrease no more than 50 percent.

26. (original) The system of claim 1, in which the precursor container and the flow path are formed in one or more solid blocks of thermally conductive material, said one or more blocks together forming an elongate thermally conductive body extending from the precursor container to the reaction space.

27. (original) The system of claim 26, further comprising at least one heater in thermal association with the thermally conductive body for maintaining a temperature gradient along the flow path that increases toward the reaction space.

28. (original) The system of claim 1, in which the thin film deposition system is an atomic layer deposition system.

29. (currently amended) A method of delivering pulses of a precursor vapor to a reaction space in a thin film deposition system, comprising:

providing a supply of precursor material;

establishing a flow path from the supply of precursor material to the reaction space;

vaporizing at least a portion of the precursor material to form a precursor vapor;

selectively releasing pulses of the precursor vapor through the flow path and toward the reaction space; and

filtering the precursor vapor between the supply of precursor material and the reaction space, including directing the precursor vapor through a filter passage having multiple turns, at least one of the turns being positioned in proximity to an inertial trap in communication with the filter passage so that inertia of particles carried into the filter

passage by the precursor vapor causes the particles to travel into the trap as the precursor vapor flows through said turn.

30. The method of claim 29, in which the vaporizing of the precursor material includes heating the supply of precursor material.

31. The method of claim 30, further comprising storing the supply of precursor material in a precursor container and drawing a vacuum inside the precursor container.

32. The method of claim 31, in which the drawing of the vacuum inside the precursor container is accomplished via a vacuum flow path that bypasses the reaction space.

33. The method of claim 32, further comprising filtering particles from the vacuum flow path.

34. The method of claim 29, further comprising establishing a staging volume selectively isolatable from the supply of precursor material and selectively isolatable from the reaction space.

35. The method of claim 29, in which the pulses of precursor vapor are released by a pulse valve, and further comprising providing a controlled backflow of inert gas in the flow path downstream from the pulse valve to prevent leakage from the pulse valve from reaching the reaction space when the pulse valve is closed.

36. The method of claim 29, in which the thin film deposition system is an atomic layer deposition system.

Claims 37-42 (cancelled).